Strand I: Patterns, Relationships, and Functions
Standard 1: Patterns – Students recognize similarities and generalize patterns, use patterns to create models and make predictions, describe the nature of patterns and relationships, and construct representations of mathematical relationships.
Key Ideas:
1. Recognizing, describing and generalizing patterns is the starting point of mathematics.
2. Patterns and relationships are represented and communicated in diverse ways.
3. Patterns enable students to describe and understand the physical world and to make informed predictions.
4. Recognizing and classifying families of patterns enables students to understand and use their mathematical properties.
5. Pattern recognition and analysis provide an important key to solving problems and learning new mathematics.

Elementary Benchmark	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4
1. Recognize, describe, and extend numerical and geometric patterns.	**Count, write, and order numbers** **N.ME.00.05** Count orally to 100 by ones. Count to 30 by 2's, 5's and 10's using grouped objects as needed. **Explore number patterns:** **N.MR.00.10** Create, describe, and extend simple number patterns. **Explore geometric patterns:** **G.GS.00.03** Create, describe, and extend simple geometric patterns.	**Count, write, and order numbers** **N.ME.01.01** Count to 110 by 1's, 2's, 5's, and 10's, starting from any number in the sequence; count to 500 by 100's and 10's; use ordinals to identify position in a sequence, e.g., 1st, 2nd, 3rd. **Create and describe patterns involving geometric objects:** **G.SR.01.03** Create and describe patterns, such as repeating patterns, and growing patterns using number, shape, and size. **G.SR.01.04** Distinguish between repeating and growing patterns. **G.SR.01.05** Predict the next element in a simple repeating pattern. **G.SR.01.06** Describe ways to get to the next element in simple repeating patterns.	**Count, write, and order whole numbers** **N.ME.02.01** Count to 1000 by 1's, 10's, and 100's starting from any number in the sequence. **N.ME.02.04** Count orally by 3's and 4's starting with 0, and by 2's, 5's, and 10's starting from any number.	**Count in steps, and understand even and odd numbers** **N.ME.03.04** Count orally by 6's, 7's, 8's, and 9's starting with 0, making the connection between repeated addition and multiplication. **N.ME.03.05** Know that even numbers end in 0, 2, 4, 6, or 8; name a whole number quantity that can be shared in two equal groups or grouped into pairs with no remainders; recognize even numbers as multiples of 2. Know that odd numbers end in 1, 3, 5, 7, or 9, and work with patterns involving even and odd numbers.	
2. Represent and record patterns and relationships in a variety of ways including tables, charts, and pictures.		**Create and describe patterns involving geometric objects:** **G.SR.01.03** Create and describe patterns, such as repeating patterns, and growing patterns using number, shape, and size.			
3. Use patterns to describe real-world phenomena.					
4. Explore various types of numeric and geometric patterns (repeating, growing, shrinking).		**Create and describe patterns involving geometric objects** **G.SR.01.03** Create and describe patterns, such as repeating patterns, and growing patterns using number, shape, and size. **G.SR.01.05** Predict the next element in a simple repeating pattern. **G.SR.01.06** Describe ways to get to the next element in simple repeating patterns.			
5. Apply their experiences with patterns to help solve problems and explore new content.	**Explore geometric patterns:** **G.GS.00.03** Create, describe, and extend simple geometric patterns.	**Create and describe patterns involving geometric objects** **G.SR.01.05** Predict the next element in a simple repeating pattern.			

Strand I: Patterns, Relationships, and Functions
Standard 2: Variability and Change - Students describe the relationships among variables, predict what will happen to one variable as another variable is changed, analyze natural variation and sources of variability, and compare patterns of change.

Key Ideas:
1. Studying change and variability in physical and abstract contexts is an important objective of mathematics.
2. Variability becomes understandable when students recognize patterns of change and natural variation
3. Changes are frequently interdependent; understanding patterns of change in one variable can help students predict changes in another.
4. Variability is represented in a variety of symbolic forms.
5. Functions and relationships are used to model patterns of variability arising from physical and mathematical contexts.
6. Understanding variability and change is a basis for making sense of the world and of mathematical ideas.

Elementary Benchmark	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4
1. Recognize change and variability when it occurs in a variety of settings.					
2. Recognize that change is often predictable, but variable, and that patterns emerge that help to describe the change.					
3. Explore change, and realize that changes are frequently interdependent.					
4. Use tables, charts, open sentences, and hands-on models to represent change and variability.					
5. Begin to describe and differentiate between types of relationships, especially repeating, growing, and shrinking patterns.					
6. Explore variability and change in a variety of contexts, investigations, and problems.					